

**Claims: I claim:**

1. A staff sheet printer comprising:

- (a) a plurality of sensors means sensing a plurality of strokes of keys, vibration, pressure, and other means of making sound operated by a plurality of musical instrument players,

wherein said sensors consist of electronic photodiode, piezoelectric components, vibration sensors, and switches;

- (b) a plurality of interface modules for said sensors means having a signal interface adaptability for different types of said sensors for all types of the musical instruments,

wherein said signal interface adaptability means being able to connect a plurality of small analog voltage or current generated by said sensors to a plurality of voltage or current used in digital circuitry;

- (c) a printer module means receiving a plurality of printable bit map data from a plurality of memory module RAM by a plurality of CPU module, and printing said printable bit map data onto a plurality of papers using a

plurality of array of pins vertically mounted with one row or several rows on a print head or laser beam print head or thermal print head,

wherein said printable bit map data means the data created by using a plurality of font data in a plurality of memory module ROM and a plurality of input information generated by said sensors;

- (d) a plurality of operation interface module means having a S/E start/enter button, a STP stop button, a R record button, a P print button, an up or down button, and a cursor left or right button, for said staff sheet printer for setting up a note, a tempo value, and a time signature of the music pieces, which enables said recording function for the music notes that are to be recognized correctly, and printing said printable bit map data for that played music;
- (e) a plurality of signal processing module A/D means converting said small analog voltage or current signals received from said sensors to a plurality of digital signals;
- (f) a plurality of MUX multiplexer means controlling said multiple signal processing modules for said sensors;
- (g) a plurality of memory module RAM means a plurality of temporarily working and storage memory modules used by said signal processing

modules, said CPU module, said memory module ROM, said printer module, said operation button interface module, and a display module;

- (h) a plurality of memory module ROM means storing a plurality of fonts consisting of all musical notes by all musical instrument types and a plurality of an operating software for said staff sheet printer,

wherein said operating software means used by said CPU module to control said signal processing module, said MUX multiplexer module, said memory module RAM, said memory module ROM, said printer module, said display module, and said operation button interface module;

- (i) a plurality of display module means indicating operational interface between music player and said staff sheet printer, and displaying the tempo and its associated music note with the given time signature selected by using said up or down button, and said cursor left or right button or displaying a plurality of messages generated by said printer module for a plurality of warning messages,

wherein said warning messages are a plurality of messages generated by said CPU and said printer module;

- (j) a plurality of said CPU module means controlling said signal processing

modules, said MUX multiplexer, said memory module RAM, said memory module ROM, said printer module, said display module, and said operation button module interface module;

(k) a plurality of software stored in said memory module ROM provides a plurality of instructions to said CPU module to monitor the difference types of said sensors and any music notes played;

(l) a plurality of said software stored in said memory module ROM provides a plurality of instructions to the said CPU module to convert a plurality of small signal generated by said sensors to a plurality of digital signals, and said converted digital signal is cross referenced against said fonts stored in said module ROM,

wherein said digital signals are stored in said RAM;

(m) a plurality of said software stored in said memory module ROM provides a plurality of instructions to said CPU module to build printable bit map data in said memory module RAM for printing a plurality of staff sheets using said fonts and said stored digital signals;

(n) a plurality of said software stored in said memory module ROM provides a plurality of instructions to said CPU module to gather the given music note, the tempo, and the time signature of the music parameters for an operation

of said staff sheet printer, and said information is stored in said memory module RAM,

wherein said operation means to use said buttons connected to said operation button interface module. Furthermore, the music parameters are selected for playing the music using said cursor control buttons on said display module; and

- (o) a plurality of said software stored in said memory module ROM provides a plurality of instructions to said CPU module to control MUX multiplexer to monitor said signal processing modules for different musical instruments.
  - (p) a plurality of said software stored in said memory module ROM provides a plurality of instructions to said CPU module to print a plurality of bit map data to said printer module.
2. A staff sheet printer according to claim 1, wherein said fonts having different music notes for a plurality of different musical instrument types are stored in said memory module ROM,

wherein said fonts consist of a plurality of pitches, a plurality of ties, and a plurality of dotted-notes for a whole note, a half note, a quarter note, an eighth note, a sixteenth note, and a thirty-second note. Furthermore, a treble clef, a bass clef, a sharp, a flat, a natural, a trill, a forte, a repeat, a

turn, a return, a staff sheet line, a damper, a pedal, an unacorda, a crescendo, a diminuendo, a plurality of harmonic notes for violin, and a breath mark for flute are stored in said ROM.

3. A staff sheet printer according to claim 1, said printer module means having a plurality of print heads, which consist of an array of pins vertically mounted with several rows, or thermal print head or laser beam print head,

wherein said print heads print said printable bit map data rendered by said CPU module using a plurality of fonts and a plurality of converted digital signals.